

REMARKS

Claims 3 and 4 have been cancelled without prejudice. Claim 1 has been amended as set forth above. New claim 5 has been added. Accordingly, claims 1, 2 and 5 stand for consideration in this application.

Claims 1-4 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fiorenza (USP 5,383,433).

Fiorenza discloses a microprocessor-controlled inductive ignition system which is a dual mode system. At engine starting speeds, it uses a magneto inductive ignition circuit, and at engine running speeds it uses a microprocessor-controlled ignition circuit. Specifically, the microprocessor senses the ignition firings and computes the engine speed on the basis of time between successive ignition firings. The engine reaches a predetermined cut-off speed, and then disables the magneto inductive ignition system. A typical inductive ignition system does not have the range for ideally setting the ignition timing at a starting speed (about 36° Before Top Dead Center – BTDC) and a normal engine running speed about 5°-9° BTDC. Because of this feature, Fiorenza has the dual mode ignition system described above.

Claim 1 has been amended as set forth above. Specifically, amended claim 1 recites the following:

...an initial igniting function for generating ignition instructions when a preset time has been elapsed after the reference signal of the engine rotation position is first input to the microcomputer after the microcomputer has been started up by the electricity output from the power generator operated by the humanly operative starting device and before a voltage of the power supply reaches a voltage high enough to operate the processing function, and...

Thus, the preset time has been elapsed after the reference signal of the engine rotation position is first input to the microcomputer after the microcomputer has been started up from the electricity output from the power generator. Furthermore, this occurs before a voltage of the power supply reaches a voltage high enough to operate the processing function.

While Fiorenza cuts off the inductive ignition system at a predetermined level, the instant invention, as set forth in amended claim 1 clearly now generates the ignition instruction when a preset time has been elapsed, and after the reference signal of the engine rotation position is first input to the microcomputer, after the microcomputer has been started up by power from the power generator. The above language in amended claim 1 clarifies the distinction between the invention of amended claim 1 and the cited reference. While Fiorenza uses the magneto inductive ignition circuit for startup, and then a microprocessor controlled ignition circuit for engine running speeds, the instant invention, as set forth in amended claim 1, is illustrated in Fig. 1, in diagrammatical form. A corresponding description of Fig. 1 is found in the specification on page 10, line 6 through at least page 11, line 12. The timing chart of Fig. 1 illustrates that the CPU starts up and resets at t0. A pulse P1 is inputted to the CPU from a revolution number sensor 29 (first signal). After preset time T1, the CPU outputs first ignition instructions at t2. P2 is a second pulse which is inputted from the revolution number sensor. After ignition instructions are output at timing t4, the ignition timing is determined based on the engine revolution number using an ignition timing map 30, as the engine is normally operated. Accordingly, the features of amended claim 1, as set forth above, clearly distinguish over the Fiorenza reference.

Furthermore, amended claim 1 also includes the following:

...the microcomputer generates the ignition instructions according to the ignition timing determined by the processing function instead of the ignition instructions generated by the initial igniting function after the ignition instructions are first given by the initial igniting function.

Accordingly, as set forth above, the microcomputer generates the ignition instructions according to the ignition timing determined by the processing function. Fiorenza does not have the same features. Nor does Fiorenza have the same advantages as the instant invention which enable an engine to be started up, including the starting up of a CPU during manual inertia rotation of an engine (such as with a recoil starter) in order to start the ignition operation of the engine.

Claims 3 and 4 have been cancelled without prejudice, and new claim 5 has been added. Claim 5 includes the feature of configuring the ignition device as a digital control system for igniting at an ignition angle corresponding to the engine revolution number.

In view of the amendments to the claims, and the remarks set forth above distinguishing the claimed invention from the cited reference, Applicants submit that the Examiner's rejection has been overcome. Accordingly, it is respectfully requested that the Examiner withdrawn the rejection and allow present claims 1, 2 and 5.


CONCLUSION

In view of the foregoing amendments and accompanying remarks, it is submitted that all pending claims are in condition for allowance. A prompt and favorable reconsideration of the rejection and an indication of allowability of all pending claims are earnestly solicited.

If the Examiner believes that there are issues remaining to be resolved in this application, the Examiner is invited to contact the undersigned attorney at the telephone number indicated below to arrange for an interview to expedite and complete prosecution of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
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